

The Effect of Critical Incident Stress Debriefing on the Frequency and Severity of the
Symptoms of Post Traumatic Stress Disorder

Strategic Management of Change

By: Sandra K. Schiess
Columbia Fire Department
Columbia, Missouri

An applied research project to the National Fire Academy
As part of the Executive Fire Officer Program

April 2000

ABSTRACT

The problem was the increasing resistance of Columbia Fire Department personnel to attending and participating in Critical Incident Stress Debriefing (CISD). Anecdotal reports by individual participants included encountering more problems after attending the debriefings or due to the debriefings. The purpose of this correlational research project was to determine if there is a statistically significant increase in the symptoms of Post Traumatic Stress Disorder (PTSD) that could be related to the attendance of individuals to debriefings. The Null Hypothesis tested was: Attendance at CISD will have no effect on frequency or severity of PTSD symptoms. A thirty-six item survey was used to gather data on the level of frequency and severity of symptoms being experienced by individuals and was compared to the number of times the individual attended critical incident briefings. Statistical analysis was done using mixed ANOVA with fixed effects and Tukey's HSD for unequal *n* post hoc comparison. Alpha was set *a priori* at .05. Findings indicated that there was a statistically significant increase in symptoms with increase levels of attendance. The null hypothesis was rejected. Post hoc results indicated that the increase occurred in frequency between zero and one and two or more critical incident debriefings. Severity of symptoms increased at two to four CISD sessions and decreased at five or more. Eta squared indicated five to nine percent accountability of effect on scores. Recommendation included additional research, suspending current CISD practices and strengthening of other methods of preventing PTSD Symptoms.

TABLE OF CONTENTS

	PAGE
Abstract	2
Table of Contents	3
Introduction	4
Background and Significance.	4
Literature Review	5
Method	8
Definition of Terms	8
Procedure	11
Materials	11
Analysis	12
Participants	12
Limitations.	13
Results.	13
Discussion	14
Recommendations	15
References	17
Appendix A: Sample introductory letter and survey	20
Appendix B: Research Results	23
Table 1: ANOVA Summary of all Effects	23
Table 2: Means	24
Table 3: Standard Deviations	25
Table 4: Summary of Post Hoc Comparison	26

INTRODUCTION

The problem is the increasing resistance of Columbia Fire Department personnel to attending and participating in Critical Incident Stress Debriefings (CISD). Anecdotal reports by individual participants included encountering more problems after attending the debriefings or from recollections of the debriefings. The purpose of this correlational research project is to answer the research question: What effect do CISDs have on the frequency and severity of symptoms of Post Traumatic Stress Disorder (PTSD)? The null hypothesis is: There will be no effect on the severity or frequency of PTSD symptoms with increased attendance at CISD. A survey will be used to indicate the level of frequency or severity of symptoms being experienced by individuals in relation to the number of times the individual had attended critical incident briefings.

BACKGROUND AND SIGNIFICANCE

Columbia, MO is a small city of approximately 70,000 nighttime and 125,000 daytime populations. The Fire Department is staffed by 114 personnel with 105 of these personnel performing in emergency response to over six thousand incidents a year.

Twenty years ago a critical incident debriefing procedure was implemented using the Mitchell model. Debriefings were facilitated by trained personnel from an outside agency contracted by the City of Columbia to provide personnel with an employee assistance program. Personnel were required to attend a CISD whenever the duty shift commander designated a response to fall within the description of a critical incident. Initially one call every two to three a years was subject to personnel attending a formal critical incident debriefing. As calls have increased, critical incidents debriefings have

increased. Currently two to three debriefings are requested per year. Hand-in-hand with this increase in CISD sessions has been a growing resistance by personnel who had previously attended a session to attend another one. This resistance became more vocal and emotional. Earlier this year a critical incident debriefing was planned after a call, when three personnel threatened to quit rather than attend “another one of those hell sessions” it became obvious that something was wrong and current practices needed to be reviewed.

The Strategic Management of Change course of the National Fire Academy’s Executive Fire Officers’ Program was developed to promote effective identification and implementation of change. In the Change Management Model (Module 2) various phases and tasks of effectively promoting change are explored. This research project is based on and is in essence the beginning of Phase I-Analysis, Task 1.1. This research project was designed to identify organizational conditions in the area of efficacy in handling critical incident stress.

LITERATURE REVIEW

Across the literature there is a consensus that management of critical incident stress for emergency services workers is necessary (Aguilera, 1994; Dingman, 1995; Gilliland & James, 1997; Hogan, 1995; IAFF/AAFC, 1997; Morgan, 1995; NFPA, 1997; Stevens & Ellerbrook, 1995; Van der Kolk, McFarlane & Weisaeth, 1996). It is beyond this point however that divergent philosophies arise. Conflict between mechanisms for management is increasing. The approach currently in use in many emergency services agencies was designed and is advocated by Jeffery Mitchell (1988b, 1992, 1993). The following is a synopsis of this program:

The stages proposed by Mitchell and utilized to varying degrees by mental health workers following the CISD model include the following: an introduction, which spells out the confidentiality, process and proposed benefits; a fact phase, where members of the group are asked to describe their roles and tasks during the incident, and to provide some facts about what happened from their own perspective; the thought phase, where members of the group were asked to tap their first thoughts during the stressful incident, leading to a more personal perspective: the reaction phase, which seeks to explore the worst part of the experience and hence to encourage people to acknowledge their emotional reactions and express their feelings: the symptom phase, which asks respondents to review their own symptoms of cognitive, physical, emotional and behavioral distress at the scene and subsequently, up to and including the time of the debriefing; the teaching phase which emphasizes the normality of these distress signals and gives information about the management of them and about general health issues; and the relating phase, which wraps up the meeting and summarizes it plus any plans. The debriefing is supposed to be run by at least one and preferably two specially trained mental health professionals, and to be supported by peer support personnel having previously trained in CISD and who are part of this work force. The aim of this process is to support people through a “normal” reaction to an abnormal event. Sessions may last 1 to 3 hours (Van der Kolk, et al., 1996).

Mitchell and supporters of his process are regularly published in various formats citing what they identify as empirical, anecdotal and emotionally based evidence to support

his method of debriefing (Everly, 1999; Everly & Mitchell, 1999; Mitchell 1988b; Mitchell 1992; Mitchell & Everly, 1997).

However an increasing number of researchers are compiling a strong foundation of empirical research to support that CISD is not effective and may even contribute to post critical incident stress (Bisson & Deahl, 1994; Bisson & Rose, 1998; Gist 1996a). Additionally as the evidence mounts that CISD is not the answer, critical review of Mitchell's professional credentials for developing a program in this discipline, psychological concepts noted as bases for his program and research to support the positive impact of his format cannot be substantiated by documentation appropriate to his claims (Gist & Woodall, 1999).

Examining the range of formats Van der Kolk, et al. (1996) cites a Dunning's review of the various strategies for debriefing of emergency workers and identified three protocols. A teaching or didactic process where in the debriefing process involves education of the participants in stress (recognition and self management). Two other identified processes were psychological in nature and are based on the concept that ventilation of feelings (catharsis) is central to a successful process. Variations on the psychological format may place more emphasis on coping skills and cognitive restructuring than on disclosure.

Regardless of what type of structured debriefing that is implemented statistical findings about potential benefits are being published regularly. Raphael et al. (1996) and Gist, Woodall & Magenheimer (1997) review several studies that indicate little or no difference in outcome between groups of individuals that are debriefed and those that are not. Each of them also cites studies that indicate there may be potential harm in

debriefings. In one study noted by Van der Kolk, et al. (1996) an interesting note was brought forth; individuals with certain psychological characteristics may actually experience an increase in reaction to the event with debriefing.

To summarize: Debriefing in one form or another is being widely used, appears to be supported and valued as a helpful preventive intervention, however there is growing evidence of its lack of effectiveness in terms of preventing PTSD and there are indications that it may be harming some individuals.

In light of these new findings and recent organizational indicators of unrest in personnel's desire and support of participation in formalized debriefing the need to evaluate whether the CISD methodology is functionally effective for the Columbia Fire Department organization or its members is indicated.

METHOD

A correlational research methodology will be used to test the null hypothesis: There will be no effect on the severity or frequency of PTSD symptoms based on attendance of CISD.

Definition of Terms

Post Traumatic Stress Disorder: DSM III-R (American Psychiatric Association, 1987)

describes three types of PTSD and its diagnostic criteria:

Acute. Onset of symptoms for acute PTSD must occur within six months of the trauma and last less than six months.

2. Chronic. Chronic PTSD also occurs within six months or more after the trauma but lasts more than six months.

3. Delayed. Onset of symptoms for delayed PTSD occurs six months or more after the trauma.

Diagnostic Criteria for PTSD consist of the following:

- A. Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone.
- B. Re-experiencing of the trauma as evidenced by at least one of the following:
 1. recurrent and intrusive recollections of the event
 2. recurrent dreams of the event
 3. sudden acting or feeling as if the traumatic event were recurring because of an association with an environmental or ideational stimulus.
- C. Numbing of responsiveness to or reduced involvement with the external world, beginning sometime after the trauma, as shown by at least one of the following:
 1. markedly diminished interest in one or more significant activities
 2. feelings of detachment or estrangement from others
 3. constricted affect
- D. At least two of the following symptoms that were not present before the trauma:
 1. hypervigilance or exaggerated startled response
 2. sleep disturbance
 3. guilt about surviving when others have not or about behavior required for survival

4. intensification of symptoms by exposure to events that symbolize or resemble the traumatic effect (p.250).

Critical Incident Stress Debriefing: The stages proposed by Mitchell and utilized to varying degrees by mental health workers following the CISD model include the following: an introduction, which spells out the confidentiality, process and proposed benefits; a fact phase, where members of the group are asked to describe their roles and tasks during the incident, and to provide some facts about what happened from their own perspective; the thought phase, where members of the group were asked to tap their first thoughts during the stressful incident, leading to a more personal perspective: the reaction phase, which seeks to explore the worst part of the experience and hence to encourage people to acknowledge their emotional reactions and express their feelings: the symptom phase, which asks respondents to review their own symptoms of cognitive, physical, emotional and behavioral distress at the scene and subsequently, up to and including the time of the debriefing; the teaching phase which emphasizes the normality of these distress signals and gives information about the management of them and about general health issues; and the relating phase, which wraps up the meeting and summarizes it plus any plans. The debriefing is supposed to be run by at least one and preferably two specially trained mental health professionals, and to be supported by peer support personnel have previously trained in CISD and who are part of this work force. The aim of this process is to support people through a “normal” reaction to an abnormal event. Sessions may last 1 to 3 hours (Van der Kolk, et al., 1996).

Procedure

A survey will be distributed to each member of the Emergency Services Division of the Columbia Fire Department during a series of monthly training sessions involving all shifts. The training topic will be unrelated to the subject matter of this study. The same member of the training division will disseminate the survey and review instructions for completing and returning of forms. Participation will be requested on volunteer bases. To insure anonymity no identifiers were requested on the survey. All surveys were requested to be returned and retrieval of surveys was accomplished through a closed drop box. The box was collected at the end of the final training session. Scoring will be the sum of each response made for frequency and severity. Scores will be tabulated manually. Intercoder reliability will be established using index of agreement. $(R+Oa/Ot)$. Any disagreement will be resolved using consensus.

Materials

A survey format will be used to collect data. The form contains: a disclosure of the purpose of the research, a request for voluntary participation, instruction for completion and depositing of the form, procedures for debriefing and obtaining information on results, thirty-six response items to be rated, one question to be answered and an expression of appreciation for participation. The thirty-six response items requiring rating related to the experiencing of PTSD symptoms by the participants. The ratings are scaled from one to five with one being the least experienced. Separate rating scales to evaluate frequency and severity are provided for each symptom. One question is included under a separate section for the participant to provide a numerical figure for critical incident debriefings attended.

The survey has not been evaluated for validity or reliability. It was developed by Dr. Karen Wagner (1993) as part of her doctorate dissertation and was reviewed by University of Missouri faculty and ethics committee for appropriateness and for use on human participants. The content of the survey used to evaluate the severity and frequency of symptoms was based solely on and designed to evaluate these symptoms. See Appendix A for introduction and survey content.

Analysis

Analysis will be accomplished using Windows based STATICA software. A two-way mixed ANOVA with fixed effects analysis will be completed with alpha set *a priori* at .05 against Type 1 error. Attendance at CISD will be identified as the independent variable with repeated measure levels of one through six for attendance at zero through five or more CISD sessions respectively. Dependent variables will be frequency and severity. Any statistically significant findings will be analyzed using Tukey's HSD for unequal *n* post hoc comparison. Eta squared will be used to determine the effect size on any statistically significant findings.

Participants

Participants in this study will be the total emergency services population of the Columbia Fire Department. The group consists of one hundred and five total participants. Of those one hundred and five individuals, one hundred and two are male and three are female. Race break down was supplied by the Human Resource Department of the City of Columbia and is listed as: one-hundred whites, three African- Americans and two Puerto Ricans. Average service history is 12.4 years and average age is 40.8 years.

Limitations

1. The results of this study were limited by the format of self-report of symptoms by respondents leaving room for both misinterpretation of question and increased symptom reporting to influence outcome.
2. Due to the established procedure and format of CISD at the Columbia Fire Department no controls or structure could be identified to establish quality or consistency of CISD session content.

RESULTS

Ninety-six of the total population returned the survey form. Twenty-three of the returned forms were not completed or completed in a fashion not compatible with tabulation methods. Data was tabulated from the remaining seventy-three survey forms. Findings revealed that there was a statistically significant $F(2,12) = 4.00, p < .05$ increase in PTSD symptoms with increased attendance to CISDs.

Post Hoc comparisons indicated a statistically significant increase in frequency of PTSD symptoms between attendance at zero or one critical incident debriefing and two through five or more critical incident debriefings. A statistically significant increase in symptoms was found again between attendance at three CISD and five or more CISDs. No difference was found between three and four CISDs or four and five or more CISDs.

Severity of PTSD symptoms in post hoc comparisons showed a statistically significant increase for two, three or four CISDs from the zero or one CISD. This did not hold true for five or more CISDs. No statistically significant difference in severity of

symptoms can be found between attendance at five or more CISD and any other level of attendance. Actual statistical findings can be found Appendix B, Tables 1-4.

Additionally post hoc comparisons within attendance levels showed only one, the five or more CISD's group, having a statistically significant difference between frequency and severity of symptoms. Severity of symptoms for this level of attendance was significantly lower than frequency of symptoms.

Though statistically significant findings were found in several areas the Eta squared analysis indicated that the interaction effect of CISD on frequency and severity of symptoms can account for only five to nine percent of the variance in scores.

Conclusion: The null hypothesis was rejected.

DISCUSSION

Finding statistically significant results in a relationship without being able account for a portion of the variance of the effect on scores indicates that the Columbia Fire Department has an area of concern with a group of personnel on the department showing high levels of frequency and severity of PTSD symptoms without having determined exactly the role CISD is contributing to these levels.

Reviewing the literature for PTSD in general it is noted that there are various theories of what actually precipitates vulnerability to this phenomenon. Lazurus in 1976 and in early versions of his work in 1961 and 1968 on adjustment patterns and effectiveness recommends modification in social and physical environments that might limit potential for predisposing individuals. Miller (1996) notes that emerging topics in the area of theory, assessment and treatment of PTSD are focusing on relationships between

increases in intensity and duration of trauma, predisposing vulnerability, combinations of learning theories, various personality characteristics, the presence of support systems, the locus of control and the psychoneuroimmunological aspect of adjustments.

The fact that even Mitchell is noted by Miller (1996) to be expanding the role and scope of CISD into a more all encompassing critical incident stress management (CISM) process indicates that debriefing is not the panacea to handling the psychological impact of critical incidents on the emergency services personnel. The Columbia Fire Department has, over the years, expanded its program to include involving family members in recruit school orientation and stress recognition classes. This indicates that even without empirical data, personnel realized that CISD efforts were not working. Also, with this additional effort bringing the Department more in line with current practices, the results of this study still showed PTSD symptoms in evidence.

The only area showing any decrease in activity in PTSD symptoms related to the severity of symptoms decreasing in the group having five or more sessions of CISD. In first examining this it would appear that the CISD might have had a positive impact in this area. However studies cited by Van der Kolk, et al. (1996) and observations by Leach (1994) indicate that regardless of exposure to CISD following a traumatic event the passage of time will influence the severity of symptoms. Time was not a documented variable in this survey therefore no conclusion can be drawn in this area.

RECOMMENDATIONS

Based on the statistically significant data found linking CISD attendance to increased frequency and severity of symptoms of PTSD without the ability to account for the variance of effect on scores it becomes imperative for the Columbia Fire Department to do more in-depth study to ascertain what effects are promoting the symptoms of PTSD found in the responses to the survey. Based on the research findings uncovered while conducting this study consideration should be given by the Department to suspending CISD while increasing activities that will strengthen member's resistance to PTSD symptoms.

REFERENCES

- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., revised). Washington, D. C.: American Psychiatric Association.
- Aguilera, D. C. (1994). *Crisis intervention therapy and methodology*. (Rev. Ed.). St. Louis: Mosby.
- Bisson, J. I., & Deahl, M.P. (1994). Psychological debriefing and prevention of post traumatic stress: More research is needed. *British Journal of Psychiatry*, 165, 717-720.
- Bisson, J. and Rose S. (1998). Brief early psychological intervention following trauma: a systematic review of the literature. *Journal of Traumatic Stress*, 11 (4) 697–709.
- Dingman, R. L. (1995, July). The mental health counselor's role in hurricane Andrew. *Journal of Mental Health Counseling*, 17, (3), 321-334.
- Everly, G. S. (1999). A primer on critical incident stress management: what's really in a name? *International Journal of Emergency Mental Health*.
- Everly, G. S. and Mitchell J. T. (1999). *Critical incident stress management CISM a new era and standard of care in crisis intervention* (2nd ed.). Ellicot, MD: Chevron.
- France, K. (1996). *Crisis intervention handbook for immediate person-to-person help* (3rd ed.). Springfield, IL: Charles C Thomas.
- Gilliland B. E. and James R. K. (1997). *Crisis intervention strategies*. Pacific Grove, CA: Brooks/Cole.
- Gist, R. (1996a). Is CISD built of a foundation of sand? *Fire Chief*, 40(8), 38-42.
- Gist, R., Woodall, S. J. & Magenheimer, L. K. (1997). *And then you do the Hokey Pokey and you turn yourself around*. Unpublished manuscript.

Gist, R. & Woodall, S. J. (1999). *There are no simple solutions to complex problems: the rise and fall of critical incident stress debriefing as a response to occupational stress in the fire service*. Unpublished manuscript.

Hogan, D. (1995). *The P.L.A.C.E. crisis intervention model: emotional fire-aid* (Clearhouse No. CG025990). Alberta, Canada (ERIC Documentation Reproduction Services No. ED 379 552).

IAFF/IAFC. (1997). *Joint initiative on wellness and safety*. Washington DC: Author.

Lazarus, R. S. (1976) *Patterns of adjustment*. McGraw Hill.

Leach, J. (1994). *Survival Psychology*. New York: New York University Press.

Miller T. W. (Ed.). (1996). *Theory and assessment of stressful life events*. United States: International Universities Press.

Mitchell J. T. (1999). Essential factors for effective psychological response to disasters and other crises. *International Journal of Emergency Mental Health*, 1, 51-58.

Mitchell, J. T. (1988b). Development and functions of a critical incident stress debriefing team. *Journal of Emergency Medical Services*, 13, (11) 36-39.

Mitchell, J. T. (1992). Protecting your people from critical incident stress. *Fire Chief*, 36(5), 61-67.

Mitchell, J. T. and Everly, G. S. (1993) *Critical incident stress debriefing: An operations manual for the prevention of traumatic stress among emergency services and disaster workers*. Ellicott City, MD: Chevron Publishing.

Mitchell, J. T. & Everly, G. S. (1997). The scientific evidence for critical incident stress management. *Journal of Emergency Medical Services*, 22(1), 86-93.

Morgan, J. (1995, July). American Red Cross disaster mental health services: implementation and recent developments. *Journal of Mental Health Counseling*, 17, (3), 291-300.

National Fire Academy. (1998). Change management model. *Executive Fire Officer Program, Strategic Management of Change*. Emmetsburg, MD: Author.

NFPA. (1997). National Fire Codes. Quincy, MA: Author.

Stevens, B. A. and Ellerbrook, L. S. (1995) *Crisis intervention: an opportunity to change*. (Report No. EDO-CG-95-34) Washington D.C.: Office of Educational Research and Improvement. (ERIC Clearing house on Counseling and Student Services No. ED 405 535).

Van der Kolk, B. A., McFarlane, A. C. & Weisaeth, L. eds. (1996). Traumatic stress: the effects of overwhelming experience on mind body and society. New York: Guilford Press.

Wagner, K. S. (1993). *The treatment of adult survivors of child abuse*. Unpublished doctoral dissertation, University of Missouri, Columbia.

APPENDIX A

Sample introduction and survey.

Several of you came to me after the last critical incident debriefing and expressed dissatisfaction with this process. The attached survey was developed in an attempt to find out if our critical incident debriefings have a statistically significant effect on Post Traumatic Stress Disorder symptoms. The findings will be used to identify if there is a need for change. Additionally I will be including the results in a research paper I am writing for the National Fire Academy's Executive Fire Officer's Program. A copy of the paper will be provided to the Department and anyone interested.

This is an anonymous survey. Your participation is strictly voluntary. If you decide to participate please fill out the survey and drop it in the sealed box at the back of the classroom sometime during class today. If you decide not to participate please place the blank survey in the same box.

If you have any questions or would like to discuss the survey or the results to the survey please contact me either at work (you know the number) or at home (446-3721).

Your participation is appreciated and will help everyone!

Sandy

SURVEY

Instructions Part I: Please circle the answer that is appropriate for your situation.

I have been through critical incident debriefing:

0 times 1 time 2 times 3 times 4 times 5 or more times

Instructions Part II: Please read the following phrases and circle the number of the response that best indicates the frequency and severity of each problem for you right now.

<u>FREQUENCY</u>					<u>SEVERITY</u>				
1 Not a problem	2 Seldom a problem	3 Sometimes a problem	4 Often a problem	5 Often a problem	1 Not at all severe	2 Somewhat Severe	3 Moderately severe	4 Very severe	5 Extremely severe

STRESS PROBLEMS	FREQUENCY	SEVERITY
1. Recurrent or intrusive recollections	1 2 3 4 5	1 2 3 4 5
2. Recurrent dreams or nightmares of the critical incident	1 2 3 4 5	1 2 3 4 5
3. Sudden acting or feeling as if the incident were reoccurring.	1 2 3 4 5	1 2 3 4 5
4. Certain situations trigger unpleasant reactions or memories of the incident	1 2 3 4 5	1 2 3 4 5
5. Apathy or disinterest in things	1 2 3 4 5	1 2 3 4 5
6. Emptiness or numbness inside	1 2 3 4 5	1 2 3 4 5
7. Difficulty experiencing or expressing feelings	1 2 3 4 5	1 2 3 4 5
8. Feeling emotionally distant and separate from those around you	1 2 3 4 5	1 2 3 4 5
9. Being overly alert and easily startled	1 2 3 4 5	1 2 3 4 5
10. Trouble getting a good night's sleep	1 2 3 4 5	1 2 3 4 5
11. Feeling guilty or ashamed about what happened	1 2 3 4 5	1 2 3 4 5
12. Avoidance of any reminder of what happened	1 2 3 4 5	1 2 3 4 5
13. Any reminder of the incident makes you other problems seem much worse	1 2 3 4 5	1 2 3 4 5
14. Feeling your life was ruined by this experience	1 2 3 4 5	1 2 3 4 5
15. Feeling jumpy, jittery, nervous and irritable	1 2 3 4 5	1 2 3 4 5
16. Feeling anxious	1 2 3 4 5	1 2 3 4 5
17. Feeling depressed	1 2 3 4 5	1 2 3 4 5
18. Experiencing anger or rage	1 2 3 4 5	1 2 3 4 5
19. Experiencing fear	1 2 3 4 5	1 2 3 4 5
20. Trouble remembering things or concentrating on one thing	1 2 3 4 5	1 2 3 4 5
21. Nightmares	1 2 3 4 5	1 2 3 4 5
22. _____ (Other stress problems, if any)	1 2 3 4 5	1 2 3 4 5
23. _____ (Other stress problems, if any)	1 2 3 4 5	1 2 3 4 5

FREQUENCY					SEVERITY				
1 Not a problem	2 Seldom a problem	3 Sometimes a problem	4 Often a problem	5 Often a problem	1 Not at all severe	2 Somewhat Severe	3 Moderately severe	4 Very severe	5 Extremely severe

RELATIONSHIP AND COMMUNICATION PROBLEMS	FREQUENCY	SEVERITY
24. Reactions to the incident interfering with job or household responsibilities	1 2 3 4 5	1 2 3 4 5
25. Reactions to incident causing family problems	1 2 3 4 5	1 2 3 4 5
26. Reactions to incident causing family to worry about you	1 2 3 4 5	1 2 3 4 5
27. Tendency to avoid contact with others	1 2 3 4 5	1 2 3 4 5
28. Difficulty talking openly with others	1 2 3 4 5	1 2 3 4 5
29. _____ (Other relationship/communication problems if any)	1 2 3 4 5	1 2 3 4 5
30. _____ (Other relationship/communication problems if any)	1 2 3 4 5	1 2 3 4 5
CAREER/VOCATION PROBLEMS	1 2 3 4 5	1 2 3 4 5
31. Lack of vocational interest	1 2 3 4 5	1 2 3 4 5
32. Lack of motivation to work	1 2 3 4 5	1 2 3 4 5
33. _____ (Other vocational problems, if any)	1 2 3 4 5	1 2 3 4 5
34. _____ (Other vocational problems, if any)	1 2 3 4 5	1 2 3 4 5
OTHER PROBLEMS, IF ANY	FREQUENCY	SEVERITY
35. _____	1 2 3 4 5	1 2 3 4 5
36. _____	1 2 3 4 5	1 2 3 4 5

APPENDIX B

Table 1: Summary for mixed ANOVA with fixed effect level of C1SD and PTSD symptomology for frequency and severity. $p < 0.05$.

	Df	MS	df	MS		
Effect	Effect	Effect	Error	Error	F	p-level
1	5	374.90	67	245.78	1.53	.194
2	1*	173.00*	67*	13.73*	12.60*	.001*
12	5*	55.01*	67*	13.73*	4.01*	.003*

Table 2: Mean scores as a function of level of CIST to frequency and severity of PTSD symptoms.

Level of CIST	Test area	Means
		F (5,67); p<.0031
Zero	Frequency	31.47
Zero	Severity	30.07
One	Frequency	32.50
One	Severity	29.86
Two	Frequency	37.50
Two	Severity	36.35
Three	Frequency	39.21
Three	Severity	37.21
Four	Frequency	41.00
Four	Severity	42.67
Five or more	Frequency	44.14
Five or more	Severity	33.71

Table 3: Standard deviations for groups for level of CISDs to frequency and severity of PTSD symptoms.

Level	Frequency	Severity	Valid N
Zero	4.64	3.53	15
One	6.27	5.01	14
Two	15.26	15.68	20
Three	11.46	10.96	14
Four	19.97	25.40	3
Five or more	14.96	6.78	7
All Groups	11.95	11.34	73

Table 4: Summary of Tukey's HSD for unequal n post hoc comparison

Level	Test	Group	{1}	{2}	{3}	{4}	{5}	{6}
CISD	Area	Number						
Zero	Severity	{1}		1.00	1.00	.991	.002*	.0269*
Zero	Frequency	{2}	1.00		.884	1.00	.000*	.001*
One	Severity	{3}	1.00	.844		.762	.030*	.226
One	Frequency	{4}	1.00	1.00	.762		.000*	.001*
Two	Severity	{5}	.002*	.000*	.030*	.000*		.998
Two	Frequency	{6}	.027*	.001*	.226	.001*	.998	
Three	Severity	{7}	.000*	.000*	.000*	.000*	.985	.661
Three	Frequency	{8}	.006*	.000*	.053	.000*	1.00	1.00
Four	Severity	{9}	.091	.027*	.199	.021*	.990	.924
Four	Frequency	{10}	.020*	.005*	.053	.004*	.858	.632
Five +	Severity	{11}	.000*	.000*	.000*	.000*	.054	.010*
Five +	Frequency	{12}	.991	.789	.999	.726	.748	.971

Table 4 continued: Summary of Tukey's HSD for unequal n post hoc comparison

Level	Test	Group	{7}	{8}	{9}	{10}	{11}	{12}
CISD	Area	Number						
Zero	Severity	{1}	.000*	.006*	.092	.021*	.000*	1.00
Zero	Frequency	{2}	.000*	.000*	.027*	.005*	.000*	.789
One	Severity	{3}	.001*	.053	.200	.054	.000*	1.00
One	Frequency	{4}	.000*	.000*	.021*	.004*	.000*	.726
Two	Severity	{5}	.985	1.00	.990	.858	.054	.748
Two	Frequency	{6}	.661	1.00	.924	.632	.010*	.971
Three	Severity	{7}		.953	1.00	.991	.365	.214
Three	Frequency	{8}	.954		.982	.811	.037*	.829
Four	Severity	{9}	1.00	.982		1.00	1.00	.415
Four	Frequency	{10}	.992	.881	1.00		1.00	.145
Five +	Severity	{11}	.365	.037*	.996	1.00		.000*
Five +	Frequency	{12}	.214	.829	.415	.145	.000*	